

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference SF-1077-PCT | FOR FURTHER ACTION See Form PCT/IPEA/416 | |
| International application No. PCT/JP2004/009853 | International filing date (day/month/year) 09.07.2004 | Priority date (day/month/year) 11.07.2003 |
| International Patent Classification (IPC) or national classification and IPC G01N25/18, G01N27/18, G01N33/22, G01F1/684, F02D15/00, F02D45/00, F02P5/15, | | |
| Applicant MITSUI MINING & SMELTING CO., LTD. | | |

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|---|-----------------------------------|
| <p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> | |
| <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input checked="" type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p> | |
| Date of submission of the demand | Date of completion of this report |
| Name and mailing address of the IPEA/JP | Authorized officer |
| Facsimile No. | Telephone No. |

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
 - ☐ international search (Rule 12.3 and 23.1(b))
 - ☐ publication of the international application (Rule 12.4)
 - ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
 - ☒ the international application as originally filed/furnished
 - ☐ the description:
 - pages _____ as originally filed/furnished
 - pages* _____ received by this Authority on _____
 - pages* _____ received by this Authority on _____
 - ☐ the claims:
 - nos. _____ as originally filed/furnished
 - nos.* _____ as amended (together with any statement) under Article 19
 - nos.* _____ received by this Authority on _____
 - nos.* _____ received by this Authority on _____
 - ☐ the drawings:
 - sheets _____ as originally filed/furnished
 - sheets* _____ received by this Authority on _____
 - sheets* _____ received by this Authority on _____
 - ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
 - ☐ the description, pages _____
 - ☐ the claims, nos. _____
 - ☐ the drawings, sheets/figs _____
 - ☐ the sequence listing (*specify*): _____
 - ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 - ☐ the description, pages _____
 - ☐ the claims, nos. _____
 - ☐ the drawings, sheets/figs _____
 - ☐ the sequence listing (*specify*): _____
 - ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. IV

Lack of unity of invention

1. ☐ In response to the invitation to restrict or pay additional fees the applicant has:
- ☐ restricted the claims.
 - ☐ paid additional fees.
 - ☐ paid additional fees under protest.
 - ☐ neither restricted the claims nor paid additional fees.
2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is:
- ☐ complied with.
 - ☒ not complied with for the following reasons:
- Claims 1-34 relate to flow rate and liquid type detection.
- Claims 35-38 relate to liquid type detection.
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☒ all parts.
 - ☐ the parts relating to claims Nos. _____

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| Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | | |
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| 1. Statement | | | |
| Novelty (N) | Claims | 1-68 | YES |
| | Claims | | NO |
| Inventive step (IS) | Claims | 1-34, 36, 38, 39, 42, 49, 51, 52, 55 | 35. YES |
| | Claims | 35, 37, 40, 41, 43-48, 50, 53, 54, 56-58 | NO |
| Industrial applicability (IA) | Claims | 1-68 | YES |
| | Claims | | NO |
| 2. Citations and explanations (Rule 70.7) | | | |
| <p>Claims 35, 37, 41, 43-45, 47, 48, 50, 54 and 56-58</p> <p>Document 1: JP 11-153561 A (Mitsui Mining & Smelting Co., Ltd.), 8 June 1999; entire text and all drawings</p> <p>Document 2: JP 3-262949 A (Matsushita Electric Industrial Co., Ltd.), 22 November 1991; entire text and all drawings</p> <p>Document 1 discloses a technique for identifying types of liquid, and discloses features such as a liquid type detecting sensor heater and a liquid temperature sensor.</p> <p>Document 2 also discloses a technique for identifying types of liquid, and discloses a liquid type detecting chamber, a flow control plate, and a technique for identifying types of liquids by applying a pulsed voltage for a set time, temporarily heating the resident fluid to be identified, and identifying the type of liquid from the difference in output voltage corresponding to the difference in temperature between the initial temperature and the peak temperature.</p> <p>Claims 40, 46, 47, 53, 59 and 60</p> | | | |

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Document 1:

Document 2:

Document 3: JP 2001-4423 A (Mitsui Mining & Smelting Co., Ltd.), 12 January 2001; entire text and all drawings

Document 3 discloses a technique for identifying types of liquids and discloses features such as heat insulating members and metal fins.

Claims 61-66

Document 1:

Document 2:

Document 4: JP 5-62698 B2 (Mazda Motor Company Ltd.), 9 September 1993; entire text and all drawings

Document 5: JP 4-178550 A (Hitachi, Ltd.), 25 June 1992; entire text and all drawings

Documents 4 and 5 disclose techniques for detecting types of liquids for automobiles and for decreasing exhaust gas, and disclose features such as adjustment of ignition timing and/or compression ratio.

Claims 67 and 68

Document 1:

Document 2:

Document 6: JP 2001-20724 A (Isuzu Motor Co.), 23 January 2001; entire text and all drawings

Document 6 discloses a technique for decreasing automobile exhaust gas, and discloses features such as supplying a urea solution.

Claims 36, 38, 39, 42, 49, 51, 52 and 55

Documents 1-6 are documents defining the general

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state of the art relating to techniques for identifying types of liquid; however, none of the documents cited in the international search report discloses or suggests the shape of the flow control plate or the liquid type detecting chamber, or the voltage difference between the average starting voltage and the average peak voltage.

Claims 1-34

Document 7: JP 11-118566 A (Mitsui Mining & Smelting Co., Ltd.), 30 April 1999; entire text and all drawings

Document 8: JP 2001-228005 A (Mitsui Mining & Smelting Co., Ltd.), 24 August 2001; entire text and all drawings

Document 9: JP 5-26796 A (Tokico Co., Ltd.), 2 February 1993; entire text and all drawings

Documents 1-9 are documents defining the general state of the art relating to techniques for identifying flow rate and types of liquid; however, none of the documents cited in the international search report discloses or suggests features such as a main flow path, subsidiary flow path, or opening and closing of a subsidiary flow path opening/closing valve.